CLAIMS

What is claimed is:

1. Poly(caprolactone fumarate).

2. A copolymer comprising:
caprolactone units; and
fumarate units.

3. The copolymer of claim 2 wherein the copolymer has a number average molecular weight in the range of 3000 to 4000.

4. The copolymer of claim 2 wherein the copolymer has a polydispersity index in the range of 2 to 4.

5. The copolymer of claim 2 wherein the copolymer has a melting point in the range of 50°C to 70°C.

6. The copolymer of claim 5 wherein the copolymer is injectable at temperatures above the melting point.

7. The copolymer of claim 2 wherein the copolymer has a hardening point in the range of 30°C to 40°C.

8 A copolymer prepared by reacting (i) a caprolactone and (ii) fumaric acid or a salt thereof.

9. The copolymer of claim 8 wherein the copolymer is prepared by reacting poly(ε-caprolactone) and fumaryl chloride.

10. The copolymer of claim 9 wherein the poly(caprolactone) has a molecular weight in the range of 500-10000 daltons.

11. The copolymer of claim 8 wherein the copolymer has a melting point between 50°C and 70°C.

12. The copolymer of claim 11 wherein the copolymer is injectable at temperatures above the melting point.

13. The copolymer of claim 11 wherein the copolymer has a hardening point in the range of 30°C to 40°C.

14. A crosslinkable, biodegradable material comprising:
a copolymer including caprolactone units and fumarate units; and
a free radical initiator.

15. The material of claim 14 wherein:
wherein the material is an injectable bone substitute.

16. The material of claim 11 wherein:
wherein the material is an injectable bone cement.

17. The material of claim 14 further comprising:
a porogen.

18. The material of claim 14 further comprising:
an accelerator.

19. The material of claim 14 wherein:
the material does not include a crosslinking agent.

20. The material of claim 14 further comprising:
particulate or fiber reinforcement materials.

21. The material of claim 14 wherein:

the reinforcement materials comprise hydroxyapatite.

22. The material of claim 14 wherein:

the copolymer is prepared by reacting (i) poly(ε-caprolactone) and (ii) fumaric acid or a salt thereof.

23. A scaffold for tissue regeneration, the scaffold comprising:

a biodegradable matrix comprising a copolymer including caprolactone units and fumarate units.

24. The scaffold of claim 23 wherein:

the copolymer is prepared by reacting (i) poly(ε-caprolactone) and (ii) fumaric acid or a salt thereof.

25. The scaffold of claim 23 wherein:

the matrix includes particulate or fiber reinforcement materials.

26. The scaffold of claim 25 wherein:

the reinforcement materials comprise hydroxyapatite.

27. The scaffold of claim 23 wherein:

the scaffold is porous.